

- FESTUCA NUTANS Willd. In woods on Lehigh Mt. July 1, 1899. (J. A. Ruth.)
- BROMUS CILIATUS L. In woods and moist thickets. (Porter.)
- BROMUS TECTORUM L. In streets of Easton. (Porter.)
- BROMUS STERILIS L. In waste places, Easton. (Porter.)
- BROMUS KALMII A. Gray. In moist woods and thickets. (Porter.)
- BROMUS SECALINUS L. In waste places and roadsides at Bethlehem. June 25, 1902.
- BROMUS RACEMOSUS L. In waste places and in dry soil at Bethlehem. May 23, 1899.
- LOLIUM PERENNE L. Along roadsides and in waste places, Bethlehem. July 10, 1899.
- LOLIUM TEMULENTUM L. In waste and cultivated grounds. (Porter.)
- AGROPYRON REPENS (L.) Beauv. Around stables and in waste places, Bethlehem. June 21, 1899.
- ELYMUS STRIATUS Willd. In woods and on banks, Easton. (Porter.)
- ELYMUS VIRGINICUS L. In moist sandy soil along Lehigh river near Bethlehem. Aug. 22, 1899.
- ELYMUS CANADENSIS L. In moist sandy soil along towpath east of Bethlehem. Aug. 5, 1899.
- HYSTRIX HYSTRIX (L.) Millsp. In shady places along Saucon creek $\frac{1}{2}$ mile from its mouth. Sept. 4, 1900.

(To be continued)

SOME RARE OHIO PLANTS FROM ASHTABULA COUNTY, OHIO

BY OTTO E. JENNINGS

During the latter part of the summer there came to me an inquiry from my friend Mr. Robert J. Sim regarding the possible occurrence of the rare orchid, *Tipularia discolor* (Pursh) Nuttall, in Ashtabula County, Ohio. A doubt having been expressed that the orchid would be found that far north, Mr. Sim expressed his firm belief in the correctness of his record and, later in the season, October 5, 1911, sent in to the Carnegie Museum several fine specimens of the plants, one of the plants still retaining the dead flower-stalk and seed-pods. Part of these plants were pressed and entered in the Herbarium of the Carnegie Museum, and part of them planted on the grounds of Dr. J. F. Shafer, the Pittsburgh orchid specialist. Accompanying the plants came from Mr. Sim a pencil sketch of flowers bearing the legend "Aug. 1, 1903, Andrew's Wood. 4 or 5 plants found. Jefferson, O.," and also a sketch done in color showing the single erect leaves, beautifully purplish dorsally. The color sketch bore the label "Andrews' Wood, Oct. 22, 1903. Jefferson, Ohio."

That Mr. Sim's station for *Tipularia* is a notable one appears at once from an examination of the areas of distribution accorded the species in the manuals. Britton's Manual, 2d edit., 1905, says: "In woods, Vt. to Mich., south to Fla. and La. Local and rare." Gray's Manual, 7th edit., 1908, restricts the range, thus: "A southern species, extending northw. to N. J.; reported but unverified from farther north." In the Emendations to the

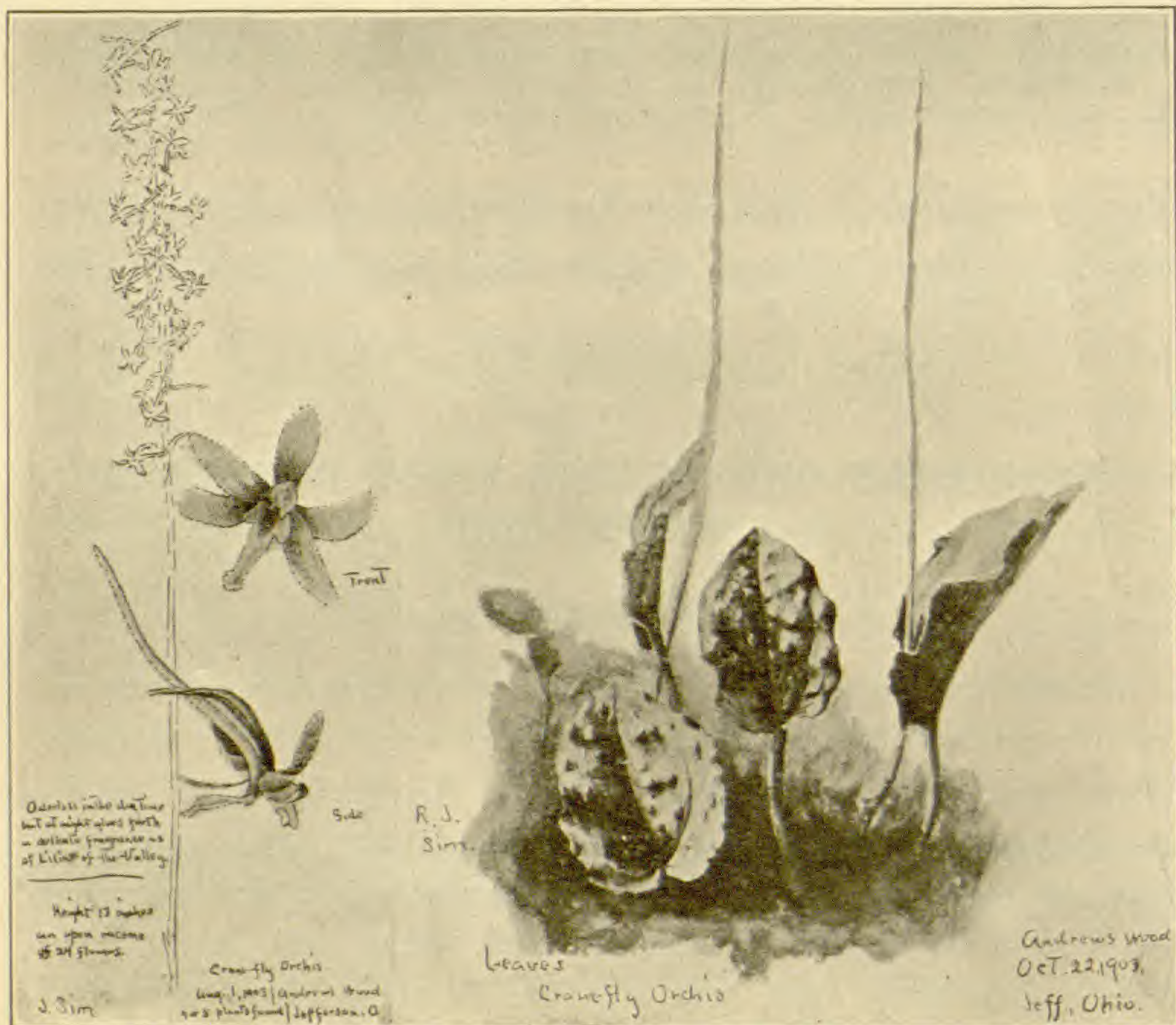


FIG. 1. The Crane-Fly Orchis (*Tipularia discolor*) as sketched from nature by Mr. R. J. Sim. Found growing in "Andrew's Wood," near Jefferson, Ashtabula County, Ohio; flowers, August 1, 1903; leaves, October 22, 1903.

Seventh Edition of Gray's Manual.—I. Robinson and Fernald, *Rhodora* 11: 33-61. March, 1909, the data of distribution were again changed to "Woods, N. J. and e. Pa. to Fla. and La.; also Cuyahoga Co., O. (Bassett)." Regarding the localities recorded in eastern Pennsylvania, the present writer finds records of occurrence in only the extreme southeastern corner of the

state, Delaware County; while for New Jersey the record is for Gloucester County, south of Philadelphia, and Cape May County in the extreme southern end of the state.

In the light of the data given above it appears that the emendations to the last Gray's Manual would give to Ohio the honor of "farthest north" in the distribution of *Tipularia* and a glance at the map shows that the new station at Jefferson, Ohio, marks the extreme northern limit in the known distribution of the orchid. This last station is considerably farther north than either of the Ohio stations previously reported—Lorain and Cuyahoga Counties—Ohio Naturalist, 10: 34. December, 1909.

In the latter part of August (1911) the writer had the pleasure of being guided by Mr. Sim up the gorge of Ashtabula Creek for perhaps two miles above the town of Ashtabula. To a naturalist this is a delightful place, abounding in insects and plants, and in the soft shales of the perpendicular bluffs bounding the gorge on either side are excellent brachiopods and cone-in-cone structures. Mr. Sim pointed out some large patches of *Tussilago Farfara* L. growing vigorously on the damp talus at the base of the bluff along the stream. This species is an interesting example of the spread of an introduced plant, it now being found in the East from Philadelphia to eastern Quebec and in various places along the Great Lakes to Minnesota. It occurs in several places near Erie, Pennsylvania; and besides Ashtabula County it has been reported in at least two other lake counties of Ohio,—Cuyahoga and Lake.

In places along Ashtabula Creek the shaly bluffs rise almost perpendicularly to a height of perhaps one hundred and twenty-five feet; and here and there have a more or less well-developed forest-covering, which might be designated as a hemlock-birch association, with also much of the white pine and mountain maple (*Acer spicatum*). The birch has proved to be interesting, as approaching pretty closely the typical form of *Betula lutea* Michx. f., but yet differing in several points. The leaves are quite typically those of *B. lutea* in the subcordate form, quite pubescent beneath and with a larger number of veins than in *B. lenta*; the bark is yellowish and peels off in thin layers; the

pistillate aments are nearly sessile, oblong, up to 3 cm. long; the bracts are pubescent, marginally ciliate, divided about to the middle into three equal lobes which diverge rather widely, the mature bracts reaching usually about 1 cm. long by 1 cm. wide and the angle formed at the base of the bract by the almost straight sides being practically a right angle; and the nut is narrowly obovate and slightly wider than the wing. In the rather constantly subcordate base of the leaves and in the more widely diverging lobes of the fruiting scales the *Ashtabula* specimens suggest a tendency towards the *Betula alleghanensis* of Britton, and it is not improbable that more typical specimens of this latter *Betula* might be found in the Ashtabula corner of Ohio.

CARNEGIE MUSEUM,

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SOME MODERN TRENDS IN ECOLOGY

BY NORMAN TAYLOR

When Ernst Haeckel, in 1866, first used the term *ecology*, it is safe to say that he little realized how the word would ultimately be construed to cover a very different set of biological factors from those described by him. Not only has the word *ecology* had a somewhat checkered career, having to stand as the outward and visible sign of many phases of biological activity, but it seems quite likely that a rather large section of that science which deals with organisms in their relation to environment has wrongfully appropriated this much used and sadly misunderstood word.

Let us hastily review the use of it by the chief exponents of what is just now a very important feature of botanical literature. While it has been stated that Haeckel first coined the term, the principles underlying the concept of ecology are very ancient. Without unearthing the more or less apocryphal progenitors of the idea, one distinguished figure of the last century stands out with whom we must reckon. Writing in 1836 Meyen has this to say: "The station (ecology) of plants denotes the relation in which the plants stand to the situation in which they always